SAFETY DATA SHEET

Creation Date 07-Oct-2014 **Revision Date** 07-Oct-2014 **Revision Number** 1

1. Identification

Product Name **Gum Mastic Solution**

Cat No. : **88034**

Synonyms No information available

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Richard Allan Scientific
A Subsidiary of Thermo Fisher Scientific
4481 Campus Drive
Kalamazoo, MI 49008
Tel: (800) 522-7270

Emergency Telephone Number
Chemtrec US: (800) 424-9300
Chemtrec EU: 001 (202) 483-7616

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 1
Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 4
Carcinogenicity	Category 1A
Specific target organ toxicity (single exposure)	Category 1
Target Organs - Central nervous system (CNS), Optic nerve.	
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Liver, Kidney.	

Label Elements

Signal Word
Danger

Hazard Statements
Extremely flammable liquid and vapor
Harmful if swallowed
Harmful if inhaled
May cause drowsiness or dizziness
May cause cancer
Causes damage to organs
Causes damage to organs through prolonged or repeated exposure

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool
Response
IF exposed: Call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)

Other hazards
Poison, may be fatal or cause blindness if swallowed. Vapor harmful. Cannot be made non-poisonous. WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

3. Composition / information on ingredients

Component	CAS-No	Weight %
Ethyl alcohol	64-17-5	90-95
Methyl alcohol	67-56-1	3-5
Isopropyl alcohol	67-63-0	3-5
Mastic, resin	61789-92-2	<1

4. First-aid measures

Eye Contact Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Consult a physician if necessary.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. If symptoms persist, call a physician.

Ingestion Call a physician or Poison Control Center immediately. Never give anything by mouth to an unconscious person. Do not induce vomiting.

Most important symptoms/effects Breathing difficulties. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Suitable Extinguishing Media. Dry chemical. Carbon dioxide (CO_2). Water spray. alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point 17.1 °C 62.7 °F

Method - Closed cup

Autoignition Temperature No information available

Explosion Limits

Upper 19.0

Lower 3.3

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

None known

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	4	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.

Environmental Precautions See Section 12 for additional ecological information.

Methods for Containment and Clean Up Keep container tightly closed in a dry and well-ventilated place. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Clean contaminated surface thoroughly.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Keep container tightly closed. Wash hands before breaks and immediately after handling the product. Keep away from open flames, hot surfaces and sources of ignition.

Storage Keep container tightly closed in a dry and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep tightly closed in a dry and cool place. Keep in properly labeled containers. Flammables area.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Ethyl alcohol	STEL: 1000 ppm	(Vacated) TWA: 1000 ppm (Vacated) TWA: 1900 mg/m³ TWA: 1000 ppm TWA: 1900 mg/m³	IDLH: 3300 ppm TWA: 1000 ppm TWA: 1900 mg/m³
Methyl alcohol	TWA: 200 ppm STEL: 250 ppm Skin	(Vacated) TWA: 200 ppm (Vacated) TWA: 260 mg/m³ (Vacated) STEL: 250 ppm (Vacated) STEL: 325 mg/m³ Skin TWA: 200 ppm TWA: 260 mg/m³	IDLH: 6000 ppm TWA: 200 ppm TWA: 260 mg/m³ STEL: 250 ppm STEL: 325 mg/m³
Isopropyl alcohol	TWA: 200 ppm STEL: 400 ppm	(Vacated) TWA: 400 ppm (Vacated) TWA: 980 mg/m³ (Vacated) STEL: 500 ppm (Vacated) STEL: 1225 mg/m³ TWA: 400 ppm TWA: 980 mg/m³	IDLH: 2000 ppm TWA: 400 ppm TWA: 980 mg/m³ STEL: 500 ppm STEL: 1225 mg/m³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Ethyl alcohol	TWA: 1000 ppm TWA: 1880 mg/m³	TWA: 1000 ppm TWA: 1900 mg/m³	STEL: 1000 ppm
Methyl alcohol	TWA: 200 ppm TWA: 262 mg/m³ STEL: 250 ppm STEL: 328 mg/m³ Skin	TWA: 200 ppm TWA: 260 mg/m³ STEL: 250 ppm STEL: 310 mg/m³	TWA: 200 ppm STEL: 250 ppm Skin
Isopropyl alcohol	TWA: 400 ppm TWA: 985 mg/m³ STEL: 500 ppm STEL: 1230 mg/m³	TWA: 400 ppm TWA: 980 mg/m³ STEL: 500 ppm STEL: 1225 mg/m³	TWA: 200 ppm STEL: 400 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Light yellow
Odor	Alcohol-like
Odor Threshold	No information available
pH	No information available
Melting Point/Range	No data available

Boiling Point/Range	No information available
Flash Point	17.1 °C 62.7 °F
Method -	Closed cup
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	19.0
Lower	3.3
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	Solution

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Oral LD50 Category 4. ATE = 300 - 2000 mg/kg.
Dermal LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Vapor LC50 Category 4. ATE = 10 - 20 mg/l.

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethyl alcohol	Not listed	Not listed	20000 ppm/10H (Rat)
Methyl alcohol	6200 mg/kg (Rat)	Not listed	22500 ppm (Rat) 8 h
Isopropyl alcohol	5840 mg/kg (Rat)	13900 mg/kg (Rat) 12870 mg/kg (Rabbit)	72.6 mg/L (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Ethyl alcohol	64-17-5	Group 1	Not listed	A3	X	Not listed
Methyl alcohol	67-56-1	Not listed	Not listed	Not listed	Not listed	Not listed
Isopropyl alcohol	67-63-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mastic, resin	61789-92-2	Not listed	Not listed	Not listed	Not listed	Not listed

IARC: (International Agency for Research on Cancer)

ACGIH: (American Conference of Governmental Industrial Hygienists)

IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans
A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS) Optic nerve
STOT - repeated exposure Liver Kidney

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Ethyl alcohol	EC50 (72h) = 275 mg/l (Chlorella vulgaris)	Fathead minnow (Pimephales promelas) LC50 = 14200 mg/l/96h	Photobacterium phosphoreum:EC50 = 34634 mg/L/30 min Photobacterium phosphoreum:EC50 = 35470 mg/L/5 min	EC50 = 9268 mg/L/48h EC50 = 10800 mg/L/24h
Methyl alcohol	Not listed	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min	EC50 > 10000 mg/L 24h
Isopropyl alcohol	1000 mg/L EC50 > 72 h 1000 mg/L EC50 > 96 h	1400000 µg/L LC50 96 h 11130 mg/L LC50 96 h 9640 mg/L LC50 96 h	= 35390 mg/L EC50 Photobacterium phosphoreum 5 min	13299 mg/L EC50 = 48 h 9714 mg/L EC50 = 24 h

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility No information available.

Component	log Pow
Ethyl alcohol	-0.32
Methyl alcohol	-0.74
Isopropyl alcohol	0.05

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Methyl alcohol - 67-56-1	U154	-

14. Transport information

DOT

UN-No	UN1170
Proper Shipping Name	ETHANOL SOLUTION
Hazard Class	3
Packing Group	II

TDG

UN-No	UN1170
Proper Shipping Name	ETHANOL SOLUTION
Hazard Class	3
Packing Group	II

IATA

UN-No	UN1170
Proper Shipping Name	ETHANOL SOLUTION
Hazard Class	3
Packing Group	II

IMDG/IMO

UN-No	UN1170
Proper Shipping Name	ETHANOL SOLUTION
Hazard Class	3
Packing Group	II

15. Regulatory information

All of the components in the product are on the following Inventory lists: Australia X = listed China Canada The product is classified and labeled according to EC directives or corresponding national laws The product is classified and labeled in accordance with Directive 1999/45/EC Europe TSCA Philippines

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Ethyl alcohol	X	X	-	200-578-6	-		X	X	X	X	X
Methyl alcohol	X	X	-	200-659-6	-		X	X	X	X	X
Isopropyl alcohol	X	X	-	200-661-7	-		X	X	X	X	X
Mastic, resin	X	X	-	263-098-6	-		X	-	X	X	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Methyl alcohol	67-56-1	3-5	1.0
Isopropyl alcohol	67-63-0	3-5	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Clean Air Act Not applicable

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Methyl alcohol	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

Component	Hazardous Substances RQs	CERCLA EHS RQs
Methyl alcohol	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Ethyl alcohol	64-17-5	Developmental	-	Developmental Carcinogen
Methyl alcohol	67-56-1	Developmental	-	Developmental

State Right-to-Know Not applicable

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Ethyl alcohol	X	X	X	X	X
Methyl alcohol	X	X	X	X	X
Isopropyl alcohol	X	X	X	-	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Serious risk, Grade 3

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class B2 Flammable liquid
D1B Toxic materials
D2A Very toxic materials

16. Other information

Prepared By
Regulatory Affairs
Richard Allan Scientific
A Subsidiary of Thermo Fisher Scientific
Tel: (800) 522-7270

Creation Date 07-Oct-2014
Revision Date 07-Oct-2014
Print Date 07-Oct-2014
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Creation Date 08-Oct-2014 **Revision Date** 08-Oct-2014 **Revision Number** 1

1. Identification

Product Name **Hydroquinone Capsule**

Cat No. : **87009, 88035**

Synonyms No information available

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Richard Allan Scientific
A Subsidiary of Thermo Fisher Scientific
4481 Campus Drive
Kalamazoo, MI 49008
Tel: (800) 522-7270

Emergency Telephone Number
Chemtrec US: (800) 424-9300
Chemtrec EU: 001 (202) 483-7616

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4
Serious Eye Damage/Eye Irritation	Category 1
Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	

Label Elements

Signal Word
Danger

Hazard Statements
Harmful if swallowed
May cause an allergic skin reaction
Causes serious eye damage
May cause drowsiness or dizziness
Suspected of causing genetic defects
Suspected of causing cancer

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Avoid breathing dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Use only outdoors or in a well-ventilated area
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life
Sensitivity to light

3. Composition / information on ingredients

Component	CAS-No	Weight %
Hydroquinone	123-31-9	100

4. First-aid measures

General Advice
If symptoms persist, call a physician. Show this safety data sheet to the doctor in attendance.

Eye Contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.

Skin Contact Call a physician immediately. SPEEDY ACTION IS CRITICAL, GET MEDICAL AID IMMEDIATELY. If symptoms persist, call a physician. Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Inhalation Move to fresh air. Artificial respiration and/or oxygen may be necessary. Consult a physician. Immediate medical attention is not required. Move to fresh air in case of accidental inhalation of vapors. If symptoms persist, call a physician.

Ingestion Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician.

Most important symptoms/effects Causes eye burns. May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Carbon dioxide (CO_2). Water. Water spray.

Unsuitable Extinguishing Media No information available

Flash Point 165 °C / 329 °F

Method - No information available

Autoignition Temperature 515 °C / 959 °F

Explosion Limits

Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	1	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage. Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

Methods for Containment and Clean Up Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal.

7. Handling and storage

Handling Pay attention to flashback. No information available.

Storage Keep containers tightly closed in a cool, well-ventilated place. Keep in properly labeled containers.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Hydroquinone	TWA: 1 mg/m³	(Vacated) TWA: 2 mg/m³ TWA: 2 mg/m³	IDLH: 50 mg/m³ Ceiling: 2 mg/m³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Hydroquinone	TWA: 2 mg/m³	TWA: 2 mg/m³	TWA: 1 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Tightly fitting safety goggles.

Skin and body protection Long sleeved clothing. Impervious gloves.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing.

9. Physical and chemical properties

Physical State	Solid
Appearance	White
Odor	Odorless
Odor Threshold	No information available
pH	3.75
Melting Point/Range	170 - 174 °C / 338 - 345.2 °F
Boiling Point/Range	285 °C / 545 °F @ 760 mmHg
Flash Point	165 °C / 329 °F
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	1.320
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	515 °C / 959 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C6H6O2
Molecular Weight	110.11

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydroquinone	298 mg/kg (Rat)	74800 mg/kg (Rabbit)	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization May cause sensitization by inhalation May cause sensitization by inhalation and skin contact

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Hydroquinone	123-31-9	Not listed	Not listed	A3	Not listed	A3

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen

Mexico - Occupational Exposure Limits - Carcinogens

ACGIH: (American Conference of Governmental Industrial Hygienists)
Mexico - Occupational Exposure Limits - Carcinogens
A1 - Confirmed Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects Mutagenic effects have occurred in humans.

Reproductive Effects May cause adverse reproductive effects - such as birth defect, miscarriages, or infertility.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

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Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Hydroquinone	0.335 mg/L EC50 = 72 h	0.17 mg/L LC50 96 h 0.1 - 0.18 mg/L LC50 96 h 0.044 mg/L LC50 96 h	EC50 = 0.038 mg/L 15 min EC50 = 0.0382 mg/L 30 min EC50 = 0.042 mg/L 5 min EC50 = 23.75 mg/L 60 min	0.29 mg/L EC50 = 48 h

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
Hydroquinone	0.5

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

All of the components in the product are on the following Inventory lists: Australia X = listed China Canada The product is classified and labeled according to EC directives or corresponding national laws The product is classified and labeled in accordance with Directive 1999/45/EC Europe TSCA Korea Philippines Japan

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Hydroquinone	X	X	-	204-617-8	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Hydroquinone	123-31-9	100	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Hydroquinone	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Hydroquinone	100 lb	100 lb

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Hydroquinone	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	Y
DOT Severe Marine Pollutant	Y

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Slight risk, Grade 1

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class
D2B Toxic materials
D1B Toxic materials
E Corrosive material

16. Other information

Prepared By	Regulatory Affairs Richard Allan Scientific A Subsidiary of Thermo Fisher Scientific Tel: (800) 522-7270
Creation Date	08-Oct-2014
Revision Date	08-Oct-2014
Print Date	08-Oct-2014
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Creation Date 10-Nov-2014 **Revision Date** 10-Nov-2014 **Revision Number** 1

1. Identification

Product Name **Sensitizing Solution**

Cat No. : **88054**

Synonyms No information available

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Richard Allan Scientific
A Subsidiary of Thermo Fisher Scientific
4481 Campus Drive
Kalamazoo, MI 49008
Tel: (800) 522-7270

Emergency Telephone Number
Chemtrec US: (800) 424-9300
Chemtrec EU: 001 (202) 483-7616

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 1
Skin Sensitization	Category 1
Carcinogenicity	Category 1A
Specific target organ toxicity (single exposure)	Category 1

Target Organs - Respiratory system, Central nervous system (CNS).

Label Elements

Signal Word
Danger

Hazard Statements
Causes skin irritation
May cause an allergic skin reaction
Causes serious eye damage
May cause respiratory irritation
May cause drowsiness or dizziness
May cause cancer
Causes damage to organs

Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves
Do not breathe dust/fume/gas/mist/vapors/spray
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Response
IF exposed: Call a POISON CENTER or doctor/physician
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN: Wash with plenty of soap and water
Take off contaminated clothing and wash before reuse
If skin irritation or rash occurs: Get medical advice/attention
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)

Other hazards
WARNING! This product contains a chemical known in the State of California to cause cancer, birth defects or other reproductive harm.

3. Composition / information on ingredients

Component	CAS-No	Weight %
Zinc sulfate	7733-02-0	<1
Formaldehyde	50-00-0	3-5
Methyl alcohol	67-56-1	1-2
Water	7732-18-5	>95

4. First-aid measures

General Advice If symptoms persist, call a physician. Show this safety data sheet to the doctor in attendance.

Eye Contact Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a physician.

Inhalation Immediate medical attention is not required. If symptoms persist, call a physician. Move to fresh air in case of accidental inhalation of vapors or decomposition products.

Ingestion Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician.

Most important symptoms/effects Causes eye burns. May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Dry chemical. Carbon dioxide (CO_2). alcohol-resistant foam. Use:.

Unsuitable Extinguishing Media No information available

Flash Point 93.3 °C / 199.9 °F

Method - No information available

Autoignition Temperature No information available

Explosion Limits

Upper No data available

Lower No data available

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Keep product and empty container away from heat and sources of ignition. Risk of ignition.

Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO_2) formaldehyde

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	1	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Pay attention to flashback. Take precautionary measures against static discharges.

Environmental Precautions See Section 12 for additional ecological information. Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Pay attention to flashback. Take precautionary measures against static discharges. Contents under pressure. No information available. Do not take internally. Avoid contact with clothing.

Storage Keep away from heat and sources of ignition. Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat. Keep in properly labeled containers.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Formaldehyde	Ceiling: 0.3 ppm	(Vacated) TWA: 3 ppm (Vacated) STEL: 10 ppm (Vacated) Ceiling: 5 ppm TWA: 0.75 ppm STEL: 2 ppm	IDLH: 20 ppm TWA: 0.016 ppm Ceiling: 0.1 ppm
Methyl alcohol	TWA: 200 ppm STEL: 250 ppm Skin	(Vacated) TWA: 200 ppm (Vacated) TWA: 260 mg/m³ (Vacated) STEL: 250 ppm (Vacated) STEL: 325 mg/m³ Skin TWA: 200 ppm TWA: 260 mg/m³	IDLH: 6000 ppm TWA: 200 ppm TWA: 260 mg/m³ STEL: 250 ppm STEL: 325 mg/m³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Formaldehyde	Ceiling: 2 ppm Ceiling: 3 mg/m³	Ceiling: 2 ppm Ceiling: 3 mg/m³	STEL: 1.0 ppm CEV: 1.5 ppm
Methyl alcohol	TWA: 200 ppm TWA: 262 mg/m³ STEL: 250 ppm STEL: 328 mg/m³ Skin	TWA: 200 ppm TWA: 260 mg/m³ STEL: 250 ppm STEL: 310 mg/m³	TWA: 200 ppm STEL: 250 ppm Skin

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Tightly fitting safety goggles.

Skin and body protection Long sleeved clothing. Chemical resistant apron. Antistatic boots. Impervious gloves.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	Strong
Odor Threshold	No information available
pH	4.06
Melting Point/Range	0 °C / 32 °F
Boiling Point/Range	100 °C / 212 °F
Flash Point	93.3 °C / 199.9 °F
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available

Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	1.024
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Excess heat. Heating in air.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), formaldehyde

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Zinc sulfate	500 mg/kg (Rat)	Not listed	Not listed
Formaldehyde	500 mg/kg (Rat)	270 mg/kg (Rabbit)	0.578 mg/L (Rat) 4 h
Methyl alcohol	6200 mg/kg (Rat)	Not listed	22500 ppm (Rat) 8 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization May cause sensitization by skin contact

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Zinc sulfate	7733-02-0	Not listed	Not listed	Not listed	Not listed	Not listed
Formaldehyde	50-00-0	Group 1	Known	A2	X	A2
Methyl alcohol	67-56-1	Not listed	Not listed	Not listed	Not listed	Not listed
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed

IARC: (International Agency for Research on Cancer)

NTP: (National Toxicity Program)

ACGIH: (American Conference of Governmental Industrial Hygienists)

IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans
NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen
A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens	*Mexico - Occupational Exposure Limits - Carcinogens* *A1 - Confirmed Human Carcinogen* *A2 - Suspected Human Carcinogen* *A3 - Confirmed Animal Carcinogen* *A4 - Not Classifiable as a Human Carcinogen* *A5 - Not Suspected as a Human Carcinogen*

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system Central nervous system (CNS)

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

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Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Zinc sulfate	0.056 mg/L EC50 = 72 h	0.48 - 1.72 mg/L LC50 96 h 49.23 - 64.16 mg/L LC50 96 h 0.63 mg/L LC50 96 h 3.55 - 6.32 mg/L LC50 96 h 3 - 4.6 mg/L LC50 96 h 16.85 - 27.18 mg/L LC50 96 h 0.15 mg/L LC50 96 h 0.168 - 0.25 mg/L LC50 96 h 0.23 - 0.48 mg/L LC50 96 h 0.06 mg/L LC50 96 h 0.218 - 0.42 mg/L LC50 96 h 0.34 - 0.93 mg/L LC50 96 h 0.03 - 0.05 mg/L LC50 96 h 0.162 mg/L LC50 96 h	EC50 = 3.45 mg/L 15 min EC50 = 40.5 mg/L 30 min EC50 = 476 mg/L 5 min EC50 > 700 mg/L 16 h	0.538 - 0.908 mg/L EC50 48 h 0.75 mg/L EC50 = 48 h
Formaldehyde	Not listed	Leuciscus idus: LC50 = 15 mg/L 96h	Not listed	EC50 = 20 mg/L 96h EC50 = 2 mg/L 48h
Methyl alcohol	Not listed	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min	EC50 > 10000 mg/L 24h

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
Formaldehyde	-0.35
Methyl alcohol	-0.74

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Formaldehyde - 50-00-0	U122	-
Methyl alcohol - 67-56-1	U154	-

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

All of the components in the product are on the following Inventory lists: Australia X = listed China Canada The product is classified and labeled according to EC directives or corresponding national laws The product is classified and labeled in accordance with Directive 1999/45/EC Europe TSCA Korea Philippines

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Zinc sulfate	X	X	-	231-793-3	-		X	X	X	X	X
Formaldehyde	X	X	-	200-001-8	-		X	X	X	X	X
Methyl alcohol	X	X	-	200-659-6	-		X	X	X	X	X
Water	X	X	-	231-791-2	-		X	-	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Zinc sulfate	7733-02-0	<1	1.0
Formaldehyde	50-00-0	3-5	0.1
Methyl alcohol	67-56-1	1-2	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard Yes
Chronic Health Hazard Yes
Fire Hazard No
Sudden Release of Pressure Hazard No
Reactive Hazard No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Zinc sulfate	X	1000 lb	X	-
Formaldehyde	X	100 lb	-	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Formaldehyde	X		-
Methyl alcohol	X		-

OSHA Occupational Safety and Health Administration
OSHA - United States Occupational Safety and Health Administration

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Formaldehyde	2 ppm STEL 0.5 ppm Action Level 0.75 ppm TWA	TQ: 1000 lb

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Zinc sulfate	1000 lb	-
Formaldehyde	100 lb	100 lb
Methyl alcohol	5000 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals:

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Formaldehyde	50-00-0	Carcinogen	40 µg/day	Carcinogen
Methyl alcohol	67-56-1	Developmental	-	Developmental

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Zinc sulfate	X	X	X	-	-
Formaldehyde	X	X	X	X	X
Methyl alcohol	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product contains the following DHS chemicals:

Component	DHS Chemical Facility Anti-Terrorism Standard
Formaldehyde	11250 lb STQ (solution)

Other International Regulations

Mexico - Grade Slight risk, Grade 1

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class B3 Combustible liquid
E Corrosive material
D2A Very toxic materials

16. Other information

Prepared By	Regulatory Affairs Richard Allan Scientific A Subsidiary of Thermo Fisher Scientific Tel: (800) 522-7270
Creation Date	10-Nov-2014
Revision Date	10-Nov-2014
Print Date	10-Nov-2014
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

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End of SDS

SAFETY DATA SHEET

Creation Date 12-Nov-2014 **Revision Date** 12-Nov-2014 **Revision Number** 1

1. Identification

Product Name **Silver Nitrate 1 & 2 Solution (1%)**

Cat No. : **88021, 88033**

Synonyms No information available

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Richard Allan Scientific
A Subsidiary of Thermo Fisher Scientific
4481 Campus Drive
Kalamazoo, MI 49008
Tel: (800) 522-7270

Emergency Telephone Number
Chemtrec US: (800) 424-9300
Chemtrec EU: 001 (202) 483-7616

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Warning

Hazard Statements
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation

Precautionary Statements

Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Harmful to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Silver nitrate	7761-88-8	1
Water	7732-18-5	99

4. First-aid measures

General Advice If symptoms persist, call a physician. Show this safety data sheet to the doctor in attendance.

Eye Contact Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.

Skin Contact Call a physician immediately. SPEEDY ACTION IS CRITICAL, GET MEDICAL AID IMMEDIATELY. If symptoms persist, call a physician. If skin irritation persists, call a physician. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Inhalation Move to fresh air. Artificial respiration and/or oxygen may be necessary. Consult a physician. Immediate medical attention is not required. Move to fresh air in case of accidental inhalation of vapors. If symptoms persist, call a physician.

Ingestion Clean mouth with water and drink afterwards plenty of water. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Foam. Dry powder. Water.

Unsuitable Extinguishing Media No information available

Flash Point Not applicable
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Pay attention to flashback. No information available. Do not take internally.

Storage Keep containers tightly closed in a cool, well-ventilated place. Keep in properly labeled containers.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Silver nitrate	TWA: 0.01 mg/m³	(Vacated) TWA: 0.01 mg/m³	IDLH: 10 mg/m³ TWA: 0.01 mg/m³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Silver nitrate	TWA: 0.01 mg/m³	TWA: 0.01 mg/m³	TWA: 0.01 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Ensure adequate ventilation, especially in confined areas.
Personal Protective Equipment

Eye/face Protection	Tightly fitting safety goggles. Face-shield.
Skin and body protection	Long sleeved clothing. Apron. Impervious gloves.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	When using, do not eat, drink or smoke. Provide regular cleaning of equipment, work area and clothing.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Clear, colorless solution
Odor	Odorless
Odor Threshold	No information available
pH	4.44
Melting Point/Range	No data available
Boiling Point/Range	Not applicable
Flash Point	Not applicable
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	Solution

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Silver nitrate	> 2000 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Silver nitrate	7761-88-8	Not listed	Not listed	Not listed	Not listed	Not listed
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed

IARC: (International Agency for Research on Cancer)

IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

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Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Silver nitrate	-	Leuciscus idus: LC50: 0.029 mg/L/96h	Photobacterium phosphoreum: EC50: 0.038 mg/L/24h Photobacterium phosphoreum: EC50: 0.395 mg/l/15min Photobacterium phosphoreum: EC50: 0.44 mg/L/30 min as Ag++ Photobacterium phosphoreum: EC50: 0.86 mg/L/15 min as Ag++	EC50: 0.0006 mg/L/48h

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
Silver nitrate	0.19

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Silver nitrate	X	X	-	231-853-9	-		X	X	X	X	X
Water	X	X	-	231-791-2	-		X	-	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Silver nitrate	7761-88-8	1	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Silver nitrate	X	1 lb	X	-

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Silver nitrate	1 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Silver nitrate	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant Y
DOT Severe Marine Pollutant Y

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Slight risk, Grade 1

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D2B Toxic materials

16. Other information

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Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS